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EGYPTIAN CHRONOLOGY.

The consecutive life of history is chronology, without which it becomes shadowy and mythical. To be reliable it must be based on a time-scale, such as is determined by astronomy. It is said that Egypt has never had a chronology, because it is claimed that it never had a definite starting point or a fixed era. But we think this is a mistake; it would be more accurate to say that its chronological system and calendar had been lost and forgotten. The epoch of Menes has ever been at least one fixed starting point and standard era. Modern research will sooner or later discover its lost chronology, and be able to gather up the threads that have been woven into the fabric now known as its lists of dynasties. A technical chronology for Egypt must necessarily have reliable starting points with fixed dates astronomically determined as way-marks; and the more numerous they are the more certain and reliable the chronology based thereon will become.

The Egyptian Calendar was crowded with festivals. Every week, and every day in the week, had its special rites to be either weekly, monthly, half-yearly, or yearly observed. There was a perpetual round of religious services, special or general. Some day we may discover the rule for their observance; and amongst them obtain a clue to the lost chronology of this ancient people. Our present object is to consider one such clue, which has never yet been distinctly understood, known or recognized. The bilingual monument known as the Rosetta stone, which has opened Egyptian literature to the world of letters, several times refers to the "great solemnities" and festivals, called in old Egyptian "*hibu set*." One of these, known as the "THIRTY-YEAR CYCLE," is probably one of the oldest, if not the very oldest, in the Calendar, and goes back to the very genesis of Egyptian history. Vestiges of its ancient character can still be found in the

Hindoo, Persian, Mohammedan and Grecian modes of reckoning time, and the Moslems have always had a lunar "Thirty-year Cycle," with eleven days added, making $354 \times 30 + 11 = 10631$.

This "Thirty-year Cycle" was not only the most ancient, but had also special privileges attached to its recurrence. It was divided into ten sections or intercalations of three years each, at which a grand festival was held. At the close of every twelve cycles $= 12 \times 30 = 360$ years, five years were added in order to adjust it to the Sothic Great Cycle of 1460 years, or $365 \times 4 = 1460$. These three-year intercalations are kept by the Egyptians as great festivals, called "hibu set," during which it was their custom to erect temples, monuments, monoliths or obelisks and memorials of every kind. They were memorial festivals in an eminent degree, and the ceremonies and festivities were specially devoted to this kind of use. The most eminent were always reserved for the First Intercalation, or third year in a new cycle of thirty years. As it could only occur once in thirty years, the heir-apparent to the throne was usually crowned on this memorial year; the august ceremony of coronation taking place usually on the day of this First of the Ten Festivals forming the Thirty-year Cycle.

This simple example of an ancient custom in Egypt will throw a flood of light on the subject which, up to present date, has always appeared a mystery; nor has any explanation of the custom, to my knowledge, ever before been published. I allude to the coronation of the heir-apparent at this first festival, and his admission to joint occupancy of the kingly rule, no matter how young the heir-apparent might be, even if he should be comparatively an infant. In a primitive state of society this was a wise and necessary custom; as a precautionary measure it settled the question of succession, and the people were accustomed to the authority and rule of the next Pharaoh before the death of the actual sovereign took place. It also provided for the succession before the infirmities of old age rendered abdication necessary; and finally, it put an end to the strife of rival claimants and incipient revolt, which too often resulted from the sudden death of the king.

Thus Rameses II, oppressor of the Jews, at whose court Moses was trained, was crowned when only a mere youth ten years old. Why at that time? Because the First Festival in the "Thirty-year Cycle" then took place. His coronation settled the succession, and all rival claims were at an end. He was a crowned king—a Pharaoh from that time forth and sharer in the administration of the national affairs. The most turbulent times, when revolution succeeded revolution, and Egypt was divided into petty kingdoms, appear to have taken place when a king sat on the throne who had not been crowned beforehand according to custom at the first festival of a "Thirty-year Cycle." Khamuas, eldest son of Rameses the Great, was crowned at one of these festivals according to custom, but afterwards died. Menephtah, the fourteenth son, then became heir-apparent and was crowned at the next first festival of the Cycle, about seven years before the death of Rameses, his royal father.

Can we find any confirmation of this monumental evidence? Let us see.

It is a matter of indifference whose system of chronology we adopt for the purpose of illustrating our theory of this ancient cycle. We might take any one system of such modern authorities as Maspero, Brugsch, Mariette, or Lepsius, for they all place Seti I in or about the year 1400 B. C. A few years ago the whole civilized world was startled with the discoveries of the genuine mummies of Seti I, his son Rameses II, and their peers, belonging to the seventeenth, eighteenth, nineteenth, twentieth and twenty-first Dynasties, with a few minor royalties and priestly personages of both sexes, with various court functionaries of the two last dynasties. At this time Egyptologists generally fixed the date of Seti I at about 1400 B. C. We will therefore adopt a medium date of 1392 B. C., and hold the Egyptologists generally responsible for the system of chronology which this date imposes on our illustrations. We do not introduce a system of our own, but take that which our modern, living Egyptologists have placed in our hands.

Accordingly, Seti I would begin his reign in the year 1392 B. C., and the date of his warlike son Rameses' birth would be 1390 B. C.

According to the above named cyclar rule and custom, the nearest "Thirty-year Cycle" to the birth-date of Rameses would be 1383 B. C., and the first festival would be at the close of the first three years—for there were ten festivals in the series of thirty—or at the date $1383-3=1380$. That would be the date of his coronation, according to this system of modern chronology. And since he was born in 1390, he would be ten years of age when crowned at this festival. Rawlinson, in his *Ancient Egypt*, says: "At the age of ten or twelve Seti had Rameses crowned as king, and admitted him, at first to a nominal and afterwards to a real participation in the government. The chronology of the two reigns has been confused by this association. It is uncertain in what year of his reign Seti made Rameses joint ruler." Again, an inscription quoted by Brugsch (*Hist. of Egypt*, Vol. II, p. 24) says: "Thou wast raised to be a governor of this land when thou wast a youth, and countedst *ten* full years." Let us now step back a little and test the case of his father Seti I.

Seti began to reign in 1392 B. C., and reigned twelve years alone. His royal son Rameses II was born in 1390, in the second year of Seti's rule. That Seti was in full mature years when he ascended the throne is evident from the fact, that after a short reign of Rameses I, he at once took the field against a formidable revolt on his northeastern frontier, consisting of Semitic and Turanian races. In the first year of his reign he began a war with the Shasu. Starting from the fortress of Khetam he mounted his chariot, directed the forces and planned the campaign, entered the Philistine territory, overran Idumea, slaughtered the garrisons of all fortresses, and spread desolation all over the hill country from Egypt to Canaan which he subdued. He has recorded these events in an inscription quoted by Brugsch (*ibid*, p. 13). This prowess shows clearly he had arrived at the age of maturity when crowned. So that the custom of holding the coronation of the heir-apparent at the first festival of the "Thirty-year Cycle" could not apply to his case, nor to that of his father Rameses I, the founder of the dynasty. But Seti I followed the rule and custom. Rameses II was born two years after his father became king; and although three festivals occurred during the first ten years of his childhood,

yet Seti allowed them to pass, and had the coronation of his son, Rameses II, take place at the first festival of the new cycle of thirty years, in 1380 B. C., when the boy was only ten years of age.

The next cycle began in the thirtieth year of Rameses' reign, 1353 B. C.; and at that first festival of the cycle he had his son Khamuas crowned in agreement with the custom. But Khamuas died during the cycle, and his place was supplied by Menephtah the fourteenth son of Rameses. Again the custom was followed and Menephtah was crowned at the first festival of the next new thirty-years cycle, in the sixtieth year of Rameses' reign, and six years prior to his death in 1314 B. C. The date of Menephtah's coronation would be 1320 B. C. So that the thirty-year cycle of 1322 B. C. would fall in his reign, beginning with 1322 B. C., and ending in 1292 B. C. In fact the great Sothic cycle of 1460 years would end with the coronation of Menephtah. A more notable astronomical incident could not have happened to fix the date of Menephtah's reign, and the closing career of the great Rameses II. Therefore two such thirty-year cycles occurred during the sovereignty of Rameses II. Menephtah reigned about thirteen years and died in 1307 B. C. He was followed by his son Seti II, who was not crowned according to the usual rule, because his father's death occurred about eleven years before the thirty-year cycle closed.

Menephtah's name in Egyptian was Meri-en-Phtah, or "beloved of Phtah," favorite of the Creator. He was also known as Menophres in whose reign the Sothic period of 1460 years closed, and a new period began, the date being 1322 B. C. Wilkinson (*An. Egypt.*) says: "The king in whose reign the Sothic period was fixed is said to be Menophres." This test case is rendered the more notable from the fact, that the Apis-cycles of twenty-five vague years each began also in the year 1322 B. C., at the same time as the new Sothic period of 1450 years, and a new series of thirty-year cycles. Lepsius also gives the year 1322 B. C. as the date of Menephtah or Menophres. Here, then, we have a well established astronomical starting point for our illustrations—and a more notable one could not be demanded, on account of its relation to the date of the Exodus.

That a thirty-year cycle was in use at the time stated we have monumental evidence. The tomb of Knum-hotep at Benihassan contains a list of twelve festivals, or one whole cycle and two festivals of another, inscribed under the XII dynasty. And Rameses II has recorded a series of these festivals belonging to one and the same cycle, at Silsilis. The first occurred in the thirtieth year of his reign, 1350 B. C., when his eldest son Khamuas was crowned. The second, third, fourth and fifth festivals are recorded, the last is said to have been in the forty-fifth year of his reign; thus proving that the festivals occurred at intervals of three years. It is further confirmed by an Anastasia papyrus, which refers to a still later festival of the same cycle, dated 26 Mechir, in the fifty-second year of his reign. It must, therefore, have been the eighth festival in the series of ten forming the thirty-year's cycle, and three festivals before Rameses' successor, Menephtah, was crowned heir apparent, reigning jointly with his father.

We meet with the hieroglyphic form of the obelisk as early as the V dynasty: but the obelisk set up by Usurtasen I, of the XII dynasty, is the earliest of the kind possessing any considerable importance or grandeur: and has the rare advantage of still remaining on the spot where it was originally set up. It rises sixty-six feet above the plain, is formed of the hardest and most beautiful rose-colored granite, and contains a deeply-cut hieroglyphical legend repeated on its four sides. The inscription says: "The Horus-Sun, the life of those who are born, king of the Upper and Lower lands, Khepr-ka-ra: lord of the double crown, son of the sun-god Ra, Usurtasen: friend of the spirits of On, ever-loving golden Horus, the god Khepr-ka-ra, has executed this work in the *beginning of the Thirty-year Cycle*." This inscription is invaluable in its relation to the early existence and national use of this cycle as forming a connecting link—the missing link in fact—of the Egyptian Sothic Calendar. It was set up by Usurtasen I, of the XII dynasty, at Heliopolis, to commemorate the date of his coronation, which took place according to ancient custom on the first festival of the thirty-year cycle. He was then only ten years of age, and in this respect his case is very much like that of Rameses II, who was also crowned when only ten years old, at the first festival of a new cycle. The cycle when

Usurtasen was crowned would be the twenty-second in the series from the beginning in 2782 B. C., and the date would be 2110 B. C. He reigned ten years jointly with his father, and exercised royal authority for about thirty-five years. At the close of the cycle of thirty years, he followed the usual royal custom and ordered the coronation of his son Amenemhat II, who exercised royal authority jointly with his father about four or five years. To commemorate the event Usurtasen raised a second obelisk in the Fayoum, of a superior character, though less in height. It would be in the twentieth year of his sole reign and the first festival in the new cycle. On the upper portion of the obelisk he is represented as worshipping *twenty* of the principal deities—the twenty he had most favored during his twenty years of sole reign. The date was 2080 B. C.

Amenemhat II took the official name of Nub-kau-ra, and had a sole reign of about thirty-two years. Following the royal custom of his predecessors, at the next first festival of a new thirty-year cycle, he elevated his son Usurtasen to the royal dignity and reigned jointly with him for about six years before entering the eternal abode. This would be the twenty-fourth cycle from the beginning of the second Sothic cycle in 2782 B. C., the date being 2049 B. C. Usurtasen II had the throne name of Shakhhepr-ra, and had a sole reign of thirteen years only. He died before the thirty year's cycle closed: so that his successor would not be crowned, and was not crowned as his predecessors had been. Still earlier evidence is to be found in the period of the VI dynasty. The Sinai rocks contain a monumental inscription of the VI dynasty, recording the first festival of a thirty-year cycle, dated twenty-seventh of the eleventh month and eighteenth year of Pepi I of that dynasty. The date is 3074 B. C., and refers to the thirty-ninth cycle from the beginning of the first Sothic series in 4242 B. C.

The twin obelisks raised at Thebes, and the twin obelisks at Heliopolis raised by Thothmes III, were set up on the first festival of one of these thirty-year cycles: the dates are 1532 and 1502: which again shows how the cycle was used, computed and formed an integral part of the Sothic Calendar of 1460 years of 365 days to the year. The addition of five days was called the

Epact, and evidently originated in very remote times. A box containing a record of this addition of five days, belonging to the time of Amenophis III, of the XVIII dynasty, is now to be seen at Turin. But there is abundant evidence that this Epact was also officially the close of twelve "Thirty-year Cycles." Wilkinson says: "As the Sothic period was fixed in 1322 B. C., from observations, it is evident that these must have been continued during the time elapsed up to that year, which would throw back the beginning of their observations to a very remote age. The king in whose reign the Sothic period was fixed is said to be Menophres of the XIX dynasty."

Returning to the case of Rameses II it is interesting to note that within a few months of the joint rule of Seti I and his son Rameses II, falls the date of the famous "tablet stela of 400 years," found at San, the ancient Zoan of the Bible. Of course this tablet must be regarded as authentic, and set up with royal authority, as the tablet itself declares. The date of this San stela is fourth Messori, or twenty-eighth July, and the beginning of a joint rule of Seti I and Rameses II. A close inspection will prove that it is a very important stone document. Rameses claims descent from the Hyksos rulers who held sway in Egypt 400 years previously. This "tablet of 400 years" would begin therefore from the joint rule of Seti I and Rameses II in 1380, and would carry us back to $1380+400=1780$ B. C., or to the king Set Aapehti Nubt, a predecessor of Apophis, under whom Joseph served and directed the counsels of the king. The existence of this tablet implies the existence of a calendar on which it is based.

We have confined our illustrations mainly to the era of Rameses II, because of its intrinsic importance in relation to biblical times and chronology—the times of the oppression and the Exodus: and because it stands about midway between the Christian and Pyramid times, and can be used to help in solving the historic chronology, looking in both directions. Our main object has been to show the utility of using fixed dates determined astronomically as so many reliable landmarks, and thus reducing conjecture to a minimum.

RECOVERY OF THE LOST CALENDAR.—It would seem that our Egyptologists have been mistaken in assuming that the Egyptians

had no chronology, nor any fixed era or starting point. We have seen that they had a calendar by which all dates and epochs were measured and located, that the epoch of 4242 B. C. was one of the starting points in their historic chronology, and that they divided up the great Sothic cycle of 1460 years into forty-eight lesser cycles of thirty years each, and commonly known as festivals called "hibu set" or great solemnities. The kings, it is true, dated their annals by their regnal years, and the dates of a king's accession and demise were commonly placed on record by the priests, so that the entire length of his reign could be known, and no special care was taken to distinguish the years of his sole reign from those during which he was associated with his predecessor. Neither as a general rule were contemporary dynasties distinctly marked. But the fact has been forgotten that the dates of the king's accession and death, and all other notable events were linked together by being made parts of a "Thirty-year Calendar or Cycle," which stood in successive order in the list of forty-eight cycles forming the great Sothic Cycle of 1460 years, of which each king's accession formed one of the notable events in some one of these forty-eight cycles of thirty years each. The following chronological synopsis of the Calendar—tabulating three entire Sothic Cycles of 1460 years each, with the series of forty-eight cycles forming this one grand period—will illustrate this Egyptian system of chronology. The following Table begins with the first cycle, and with the first month Thoth, when the Sothic Cycle begins.

TABULAR VIEW OF THE SOTHIC CYCLE OF 1460 YEARS.

First Sothic Cycle: 4242 B. C. — 2782 B. C.

	4242 B.C.		B.C.
I	4211.583	XXV	3481.583
II	4181.167	XXVI	3451.167
III	4150.750	XXVII	3420.750
IV	4120.334	XXVIII	3390.334
V	4089.917	XXIX	3359.917
VI	4059.504	XXX	3329.504
VII	4029.084	XXXI	3299.084
VIII	3998.667	XXXII	3268.667

IX.....	3968.250	XXXIII.....	3238.250
X.....	3937.834	XXXIV.....	3207.834
XI.....	3907.427	XXXV.....	3177.427
XII.....	3877.000	XXXVI.....	3147.000
XIII.....	3846.583	XXXVII.....	3116.583
XIV.....	3816.167	XXXVIII.....	3086.167
XV.....	3785.750	XXXIX.....	3055.750
XVI.....	3755.334	XL.....	3025.334
XVII.....	3724.917	XLI.....	2994.917
XVIII.....	3694.504	XLII.....	2964.504
XIX.....	3664.084	XLIII.....	2934.084
XX.....	3633.667	XLIV.....	2903.667
XXI.....	3603.250	XLV.....	2873.250
XXII.....	3572.834	XLVI.....	2842.834
XXIII.....	3542.427	XLVII.....	2812.427
XXIV.....	3512.000	XLVIII.....	2782.000

Second Sothic Cycle: 2782 B. C. — 1322 B. C.

	2782 B. C.		B. C.
I.....	2751.583	XXV.....	2021.583
II.....	2721.167	XXVI.....	1991.167
III.....	2690.750	XXVII.....	1960.750
IV.....	2660.334	XXVIII.....	1930.334
V.....	2629.917	XXIX.....	1899.917
VI.....	2599.504	XXX.....	1869.504
VII.....	2569.084	XXXI.....	1839.084
VII.....	2538.667	XXXII.....	1808.667
IX.....	2508.250	XXXIII.....	1778.250
X.....	2477.834	XXXIV.....	1747.834
XI.....	2447.427	XXXV.....	1717.427
XII.....	2417.000	XXXVI.....	1687.000
XIII.....	2386.583	XXXVII.....	1656.583
XIV.....	2356.167	XXXVIII.....	1626.167
XV.....	2325.750	XXXIX.....	1595.750
XVI.....	2295.334	XL.....	1565.334
XVII.....	2264.917	XLI.....	1534.917
XVIII.....	2234.504	XLII.....	1504.504
XIX.....	2204.084	XLIII.....	1474.084
XX.....	2173.667	XLIV.....	1443.667
XXI.....	2143.250	XLV.....	1413.250
XXII.....	2112.834	XLVI.....	1382.834
XXIII.....	2082.427	XLVII.....	1352.427
XXIV.....	2052.000	XLVIII.....	1322.000

Third Sothic Cycle: 1322 B. C. — 139 A. D.

	1322 B. C.		B. C.
I.....	1291.583	XXV.....	561.583
II.....	1261.167	XXVI.....	531.167
III.....	1230.750	XXVII.....	500.750
IV.....	1200.334	XXVIII.....	470.334
V.....	1169.917	XXIX.....	439.917
VI.....	1139.500	XXX.....	409.500
VII.....	1109.084	XXXI.....	379.084
VIII.....	1078.667	XXXII.....	348.667
IX.....	1048.250	XXXIII.....	318.250
X.....	1017.834	XXXIV.....	287.834
XI.....	987.417	XXXV.....	257.417
XII.....	957.000	XXXVI.....	227.000
XIII.....	926.583	XXXVII.....	196.583
XIV.....	896.167	XXXVIII.....	166.167
XV.....	865.750	XXXIX.....	135.750
XVI.....	835.334	XL.....	105.334
XVII.....	804.917	XLI.....	74.917
XVIII.....	774.500	XLII.....	44.500
XIX.....	744.084	XLIII.....	14.084
XX.....	713.667	XLIV.....	17.334 A. D.
XXI.....	683.250	XLI.....	47.750
XXII.....	652.834	XLVI.....	78.167
XXIII.....	622.417	XLVII.....	108.583
XXIV.....	592.000	XLVIII.....	139.000

In this table we have recovered the long lost Sothic Chronological Calendar by which Egyptian festivals were regulated, numbered and classified, and their chronological place and date in history determined. Henceforth this calendar will form a working scale for future Egyptologists, who may feel disposed to use it; as it will materially help to classify the dynasties, so as to present them in something like an approximate historic form. The date of Khufu and the pyramid kings of the IV dynasty will be 3451 B. C. The date of Pepi I of the VI dynasty is 3074 B. C.; of Usurtasen I the date will be 2110 B. C.; the twin obelisks of Thothmes III at Thebes and Heliopolis will have the dates 1532 and 1502. Rameses II will be 1380, and Menophres will close the forty-eight cycles in the second Sothic cycle of 1460 years at the date 1322 B. C. Thus we contend the Egyptians did always have

a chronology, and counted their number of festivals by classifying them in this series of forty-eight "Thirty-year Cycles" in 1460 years. The starting point and zero of the second series being the epoch 2782 B. C. The famous "tablet of 400 year" found at San, constructed by Rameses II, was based on this thirty-year cycle calendar.

I think it not improbable that the restoration of this calendar will do more than any other agency to restore the lost chronology of the Egyptian nation. Out of ten obelisks four distinctly state that they were erected at the first festival, or third year of a thirty-years cycle. Such are those of Thothmes III at Thebes and Heliopolis; Usurtasen's obelisk, the one in New York, and the Campensis at Rome erected by Psammetichus II. These obelisks are really chronological monuments of the existence of this lost Sothic Calendar, which appears to have been in popular use in every age back to the time of the building of the Great Pyramid and the establishment of the Egyptian empire. Beginning at the early Christian period, we have Theon the astronomer who declares that the complete Sothic cycle of 1460 years ended in 139 A. D.; and all along the centuries backwards its existence has been acknowledged. It was noticed by Tacitus, Eratosthenes, Berosus, Manetho, Herodotus, and others during the five centuries before the Christian era. And we have traced it up from Menophres, Rameses, Usurtasen and Pepi I to Pyramid times. The early record of Pepi I can still be seen on the rocks of the Sinaitic peninsula.

The mode of reckoning by this thirty-years' calendar was as simple as the modern calendar we use to-day. The cycle was reckoned as the first, second, third, fourth, and so on successively to the forty-eighth cycle which ended the series, and completed the Sothic period of 1460 years. The cycle of Pepi I would be called the thirty-ninth thirty-year cycle in the series, having the date 3074 B. C. The cycle of Usurtasen's obelisk would be the twenty-second, having the date 2110 B. C. The cycles of Thothmes III's obelisks would be the forty-first and forty-second, having the dates 1532 and 1502 B. C. The coronation of Rameses II in 1380 B. C. would begin the forty-sixth cycle in the series. While the commencement of the Apis periods of

twenty-five vague years would close the second Sothic period of 1460 years in the year 1322 B. C., during the reign of the Exodus king Menephtah or Menophres. In this way the whole Sothic Calendar was chronologically connected in one unbroken chain from 4242 B. C. to 139 A. D.

By this means the great Sothic Cycle was simplified and divided into convenient festival periods of three years, ten of which made what was called a "Thirty-years Cycle." These festival periods were subservient to the popular taste for short recurrent festivities, whilst they enabled the scientist and astronomer to correct any error that may have crept into the vague or civil year.

SAMUEL BESWICK, *C. E.*